

ART. VI.—*Note on an Abnormal Development on Leaves
of Prunus cerasus.*

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(With Plate X.).

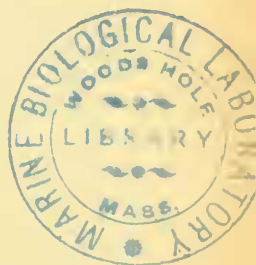
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(Communicated by Prof. A. J. Ewart, D.Sc., Ph.D.).

The leaves in question were found by Mr. C. French, junr., on trees grown in an orchard in South Gippsland. The form of growth was peculiar, and had the appearance of small leaflets developed on the under surface of the large leaves. (Fig. 1.) No such abnormality had been previously recorded, and consequently it was of interest to note the relative positions of the tissues in leaf and leaflet, and further to determine whether the orientation of the leaflet depended on the arrangement in the main leaf, or on light or gravity.

However, microscopic examination of serial sections (obtained by paraffin embedding) showed:—

1. That the palisade parenchyma was developed on the lower surface of the leaflet (i.e., on the side away from the larger leaf), so at first sight it appeared that the positions in the two did not correspond. (Fig. 2.)
2. That the relative positions of the phloem and xylem were also reversed in the same way as was the parenchyma. (Fig. 2.)
3. That there was no vascular bundle running down the centre of the leaflet, as might have been expected, also that the veins were continuous with those of the main leaf. (Fig. 2.)
4. That the two longitudinal halves of the apparent leaflet were connected in some instances by epidermis only, and in others by epidermis and a small amount of parenchyma. (Fig. 2.)



The above facts led me to believe that the leaflet was not an actual outgrowth, but was due to an attempt on the part of the plant to produce pinnately-lobed leaves.

Pluskel has already recorded the fact that "the leaves of *Prunus cerasus* sometimes, though seldom, show pinnately divided or lobed laminae."¹

In the present instance this view was supported by the fact that the growths appeared in between the veins, where the leaf would begin to segment, also that the different stages in the development could be traced on the various leaves. Thus in Fig. 1 at (*a*) the margin is only slightly split, and the edges recurved, at (*b*) and (*c*) the continuation of the margin of the leaf can be distinctly traced into the leaflet, while at (*d*) the main leaf has completely fused again above the segmentation.

The explanation probably is, that during development the leaves became slightly lobed, and while the margins were still recurved a partial fusion took place at the points of contact between adjacent lobes, or in some cases a complete fusion in the laminae outside the recurved edges; as a result the edges remained free on the under surfaces of the leaves and formed apparent leaflets.

Such an explanation would account not only for the position of parts and arrangement of bundles in the main leaf and appendage, but also for the incomplete nature of the connection between the two halves of the apparent leaflets.

The foregoing investigation was carried out in the Botanical Laboratory of the Melbourne University, and I desire to record my indebtedness to Professor Ewart for his interest and assistance.

EXPLANATION OF PLATE X.

Fig. 1.—Ventral surface of leaf of *Prunus cerasus*, showing position of appendages.

Fig. 2.—Transverse section through leaf and appendage.

* REFERENCE LETTERS.

a-d.—Partially to fully-developed appendages.

e.—Main leaf.

f.—Appendage.

g.—Bundle turning into appendage.

¹ Oesterr. Bot., Wochenbl. iv., 1854, p. 125.